

Applicants: Begemann et al.
Serial No. 10/024,226
Page 2

CLAIMS

1. (Currently Amended) A method of pacing opposing chambers of a heart with a pacing system, the pacing system comprising a first unipolar medical electrical lead having at least one first electrode configured for positioning in a first opposing chamber of the heart, a second unipolar medical electrical lead having at least one second electrode configured for positioning in a second opposing chamber of the heart, an implantable pulse generator operably connected to the first and second unipolar medical electrical leads, the implantable pulse generator further comprising an hermetically sealed housing capable of serving as a can electrode, and means for switching electrode configurations between the first electrode and the can electrode, between the second electrode and the can electrode, between the first electrode and the second electrode and between the second electrode and the first electrode, the method comprising:

determining a primary electrode configuration;

selecting a cathode from the first electrode, the second electrode and the can electrode based on the primary electrode configuration;

selecting an anode from the first electrode, the second electrode and the can electrode based on the primary electrode configuration; and

delivering a first pulse between the cathode and the anode;.

determining a first threshold of the first opposing chamber;

determining a second threshold of the second opposing chamber; and

selecting the first electrode as the cathode if the first threshold is higher

than the second threshold.

2. – 4. (Cancelled)

Applicants: Begemann et al.
Serial No. 10/024,226
Page 3

5. (Original) The method of claim 1, further comprising:
determining an alternate electrode configuration;
selecting an alternate cathode from the first electrode, the second electrode and the can electrode based on the alternate electrode configuration;
selecting an alternate anode from the first electrode, the second electrode and the can electrode based on the alternate electrode configuration; and
delivering a second pulse between the alternate cathode and the alternate anode.
6. (Original) The method of claim 5, further comprising:
re-selecting the cathode and the anode;
delivering a third pulse between the cathode and the anode;
re-selecting the alternate cathode and the alternate anode; and
delivering a fourth pulse between the alternate cathode and the alternate anode.
7. (Original) The method of claim 1, further comprising:
delivering the first pulse between the cathode and the anode so that the direction of the pulse occurs from the first opposing chamber to the second opposing chamber.
8. (Original) The method of claim 1, further comprising:
delivering the first pulse between the cathode and the anode so that the direction of the pulse occurs from the second opposing chamber to the first opposing chamber.
9. (Original) The method of claim 1, further comprising:
delivering the first pulse between the cathode and the anode in a first direction; and

Applicants: Begemann et al.
Serial No. 10/024,226
Page 4

delivering at least one subsequent pulse between the cathode and the anode in the first direction.

10. (Original) The method of claim 1, further comprising:
delivering the first pulse from the cathode; and
simultaneously delivering a second pulse from the anode.

11. - 20. (Cancelled)

21. (Currently Amended) A method of pacing opposing chambers of a heart with a pacing system, the pacing system comprising a first unipolar medical electrical lead having at least one first electrode configured for positioning in a first opposing chamber of the heart, a second unipolar medical electrical lead having at least one second electrode configured for positioning in a second opposing chamber of the heart, an implantable pulse generator operably connected to the first and second unipolar medical electrical leads, the implantable pulse generator further comprising an hermetically sealed housing capable of serving as a can electrode, the method comprising:

determining a primary electrode configuration;
selecting a cathode from the first electrode, the second electrode and the can electrode based on the primary electrode configuration;
selecting an anode from the first electrode, the second electrode and the can electrode based on the primary electrode configuration; and
delivering a first pulse between the cathode and the anode;
determining a first threshold of the first opposing chamber;
determining a second threshold of the second opposing chamber; and
selecting the first electrode as the cathode if the first threshold is higher than the second threshold.

22. - 24 (Cancelled)

Applicants: Begemann et al.
Serial No. 10/024,226
Page 5

25. (Original) The method of claim 21, further comprising:
determining an alternate electrode configuration;
selecting an alternate cathode from the first electrode, the second electrode and the can electrode based on the alternate electrode configuration;
selecting an alternate anode from the first electrode, the second electrode and the can electrode based on the alternate electrode configuration; and
delivering a second pulse between the alternate cathode and the alternate anode.
26. (Original) The method of claim 25, further comprising:
re-selecting the cathode and the anode;
delivering a third pulse between the cathode and the anode;
re-selecting the alternate cathode and the alternate anode; and
delivering a fourth pulse between the alternate cathode and the alternate anode.
27. (Original) The method of claim 21, further comprising:
delivering the first pulse between the cathode and the anode so that the direction of the pulse occurs from the first opposing chamber to the second opposing chamber.
28. (Original) The method of claim 21, further comprising:
delivering the first pulse between the cathode and the anode so that the direction of the pulse occurs from the second opposing chamber to the first opposing chamber.
29. (Original) The method of claim 21, further comprising:
delivering the first pulse between the cathode and the anode in a first direction; and

Applicants: Begemann et al.
Serial No. 10/024,226
Page 6

delivering at least one subsequent pulse between the cathode and the anode in the first direction.

30. – 31. (Cancelled)

32. (Currently Amended) An implantable medical system, comprising:

a pulse generator;

a first unipolar medical electrical lead operably connected to the pulse generator, the first unipolar medical electrical lead having at least one first electrode configured for positioning in a first opposing chamber of the heart;

a second unipolar medical electrical lead operably connected to the pulse generator, the second unipolar medical electrical lead having at least one second electrode configured for positioning in a second opposing chamber of the heart;
and

selecting means for selecting at least one of the first electrode, the second electrode and the can electrode, wherein a primary electrode configuration is determined and a cathode is selected with the selecting means, an anode is selected with the selecting means and a pulse is delivered by the pulse generator between the cathode and the anode;

means for determining a first threshold of the first opposing chamber;

means for determining a second threshold of the second opposing chamber; and

means for selecting the first electrode as the cathode if the first threshold is higher than the second threshold.

33. – 35. (Cancelled)

36. (Original) The system of claim 32, further comprising:

means for determining an alternate electrode configuration;

Applicants: Begemann et al.
Serial No. 10/024,226
Page 7

means for selecting an alternate cathode from the first electrode, the second electrode and the can electrode based on the alternate electrode configuration;

means for selecting an alternate anode from the first electrode, the second electrode and the can electrode based on the alternate electrode configuration; and

means for delivering a second pulse between the alternate cathode and the alternate anode.

37. (Original) The system of claim 36, further comprising:

means for re-selecting the cathode and the anode;

means for delivering a third pulse between the cathode and the anode;

means for re-selecting the alternate cathode and the alternate anode; and delivering a fourth pulse between the alternate cathode and the alternate anode.

38. (Original) The system of claim 32, further comprising:

means for delivering the first pulse between the cathode and the anode so that the direction of the pulse occurs from the first opposing chamber to the second opposing chamber.

39. (Original) The system of claim 32, further comprising:

means for delivering the first pulse between the cathode and the anode so that the direction of the pulse occurs from the second opposing chamber to the first opposing chamber.

40. (Original) The system of claim 32, further comprising:

means for delivering the first pulse between the cathode and the anode in a first direction; and

Applicants: Begemann et al.
Serial No. 10/024,226
Page 8

means for delivering at least one subsequent pulse between the cathode and the anode in the first direction.

41. - 50. (Cancelled)